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### **REMARKS**

#### **I. Status of Claims**

Claims 1, 2, 4-9, and 12 were previously presented; claim 11 is amended in this response; and claims 13-18 are new. Claims 3 and 10 were previously canceled. By entering this Amendment, claims 1, 2, 4-9, and 11-18 remain for reconsideration.

#### **II. Response to Obviousness Rejection of Claims 1, 2, 4-9, and 12**

The Examiner has rejected claims 1, 2, 4-9, and 12 under 35 U.S.C. §103(a) as being obvious over *Herzog* in view of U.S. 2006/0142152 A1 (*Coalter*). Applicants respectfully request that the Examiner reconsider and withdraw the rejection for the reason that follows.

Claim 1 is an independent claim and claims 2, 4-9 and 12 depend from claim 1. Claim 1 claims an olefin polymerization process which comprises: (a) starting up the polymerization reaction in a gas-phase fluidized-bed reactor using a catalyst comprising a metallocene to produce a start-up polyolefin having a melt flow rate greater than 4.5 g/10 min (Specification page 2, line 16, to page 3, line 14); and (b) continuing the polymerization reaction and gradually decreasing the melt flow rate of the polyolefin to less than 4 g/10 min, wherein the melt flow rate is measured at 2.16 kg and 190°C in accordance with ISO 1133 (Specification, page 3, line 16 to page 6, line 3).

Unlike Ziegler-Natta catalysts which usually do not present start-up problems in olefin polymerization, metallocene catalysts present considerable start-up problems. Many metallocene catalysts tend to form fine particles during the start-up of polymerization. The fine particles accumulate in the calming zone, form deposits and lumps, and hinder the start-up process to such an extent that the polymerization process may have to be terminated. See Specification, page 1, lines 20-30. The process of the invention provides a specific solution to the start-up problem associated with the use of metallocene

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catalysts. That is, the process of the invention starts up the polymerization with a metallocene catalyst by producing a start-up polyolefin having a melt flow rate greater than 4.5 g/10 min and then continues the polymerization by producing a polyolefin having a melt flow rate less than 4.5 g/10 min. See claim 1. The claimed process has successfully reduced or eliminated the formation of lumps during the start-up step. See Example 1, page 33.

*Herzog* does not deal with the particular start-up problem associated with metallocene catalysts. The catalysts, which can be used in the start-up process of *Herzog*, are essentially all Ziegler-Natta type catalysts. See the Abstract, the Summary of the Invention on col. 1, lines 35-49, and the Description of the Invention on col. 5, lines 16-24, and in the Example on col. 6, starting from line 49. Although *Herzog* states on col. 5, lines 24-25 that it is also possible to use a metallocene-based catalyst in its process, *Herzog* views metallocene catalysts, at best, as an equivalent to Ziegler-Natta catalysts. Reading *Herzog* as a whole, it is fair to say that *Herzog* does not recognize, teach, or suggest the start-up problem associated with metallocene catalysts which Applicants deal with in this invention. More particularly, *Herzog* does not specifically teach a process comprising two steps: in start-up step (a), a polyolefin having a melt flow rate greater than 4.5 g/10 min is made and in continued step (b), the polymerization is continued by gradually decreasing the melt flow rate of the polyolefin to less than 4 g/10 min.

First, Applicants will analyze why claim 1 cannot be obvious over *Herzog* in view of *Coalter*. As discussed in above subsection (a), *Herzog* as a whole does not recognize, teach, or suggest the start-up problem associated with metallocene catalysts and thus it cannot provide any solutions therefore. More particularly, *Herzog* does not teach a process comprising two steps: in the start-up step (a), a polyolefin having a melt flow rate greater than 4.5 g/10 min is made and in the continued step (b), the polymerization is continued by gradually decreasing the melt flow rate of the polyolefin to less than 4 g/10 min.

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Then the question is whether *Coalter* can remedy the deficiency of *Herzog* so that the combination of *Herzog* and *Coalter* can make the invention obvious. Applicants' answer to the question is "No."

Applicants do not dispute with the Examiner's assertion that *Coalter* discloses metallocene catalysts and recognizes the start-up problem associated with the catalysts. See page 15, paragraph [0257]. However, *Coalter* does not teach or suggest solving the start-up problem by a two-step process as defined by Applicants' claim 1. Instead, *Coalter's* solution to the start-up problem is that "a polymerization catalyst and hydroxycarboxylate metal salt mixture is used on start-up to reduce or eliminate start-up problems." See page 15, paragraph [0257]. By comparing *Coalter* with Applicants' invention, one will see that the cited reference and the invention provide two completely different solutions to the start-up problem. *Coalter* thus fails to provide necessary remedies to the deficiency of *Herzog*, and therefore the combination of *Herzog* and *Coalter* cannot make claim 1 obvious. For the same reason, the combination of *Herzog* and *Coalter* cannot make claims 2, 4-9, and 12 obvious because they depend from claim 1.

### III. Claims 11 and 13-18

The rejection of claim 11 was withdrawn. Applicants have thus rewritten claim 11 as an independent claim and incorporated the limitation of the parent and any intervening claims into claim 11. Applicants have also added new claims 13-18, which depend from claim 11. Thus claim 11 and its dependent claims 13-18 should be allowed.

### IV. Conclusion

In view of the above arguments, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claim 1, 2, 4-9, and 12, and allow claims 1, 2, 4-9, and 11-18. Applicants respectfully invite the Examiner to

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phone their attorney Shao-Hua Guo, at (610) 359-2455, if the Examiner believes that any further discussion of this application is helpful.

Respectfully submitted,  
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